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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of Telephone Number Portability	CC Docket No. 95-116

Bell Atlantic's Petition for Clarification and Partial Reconsideration

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Summary

The Commission's number portability Order[1] establishes an extremely ambitious schedule in which exchange carriers must implement long-term number portability. In one important respect, however, the Order might foreclose an important option that can help these carriers meet this schedule. The Order is being widely interpreted as prohibiting any use of Query on Release ("QoR") capabilities, even entirely within a carrier's own network to deliver calls to numbers in exchanges assigned to that carrier. Bell Atlantic[2] urges the Commission to clarify that this interpretation is incorrect.

QoR can reduce the complexity of the deployment of number portability and, therefore, is important to Bell Atlantic's ability to meet the Commission's schedule. Exchange carriers must begin to provide number portability in the largest cities in the country in a little more than a year. In many areas, QoR will allow us to ready our switches to do this relatively simply — merely by adding new software. Without QoR, we would also have to make hardware

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1 *Telephone Number Portability*, CC Dkt. 95-116 (rel. July 2, 1996) ("Order").

2 The Bell Atlantic telephone companies serving New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia and the District of Columbia.

additions to many of these switches, a far more time consuming, complicated and costly task. Without QoR, we would also need to add otherwise unnecessary databases and signaling infrastructure. It will be a challenge to do just what is absolutely necessary to meet the Commission's schedule;[3] the Commission should make it clear that we do not also have to do the additional work that QoR makes unnecessary.

The Commission must issue this clarification promptly. If Bell Atlantic is to meet the Commission's schedule, it must place firm orders with equipment manufacturers within the next sixty to ninety days. Without confirmation that it may use QoR, Bell Atlantic will have to order switch processors, transmission capacity and other hardware that it would not order if it can use QoR, hardware for which it has no other need.

Bell Atlantic also asks the Commission to reconsider the provisions of the Order relating to the pricing of interim number portability arrangements. The matters have been thoroughly considered by numerous State agencies, which have adopted pricing plans designed to satisfy the interests of consumers in each State. The Act does not require the Commission to intervene in interim portability pricing, as its doing so does not advance any public purpose.

Background

The Order is correct that the industry has essentially agreed that the location routing number ("LRN") technique is the best way to provide long-term number portability. There has been disagreement over how QoR may be used, or whether it may be used at all. Unfortunately,

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[3] The Commission's schedule also relies on the North American Numbering Council ("NANC") in setting up regional database systems. Order ¶¶ 5, 91-102. Because the Commission contemplates that NANC activities precede certain work by carriers, any delay in action by the NANC could jeopardize the Commission's schedule. At this time, of course, the NANC has yet to meet.

most of this debate before the Commission took place after the comment period had closed, shortly before the Order was adopted, and was largely through ex parte discussions. The lack of precision in these presentations likely contributed to the Commission's apparent misunderstanding of QoR.

First, QoR is not a substitute for LRN. It is an enhancement to LRN, permitting the carrier using it to reduce the number of database look-ups it makes. This reduction will decrease the load on the carrier's switch processors, signaling network and databases, decrease the cost of implementing LRN, and decrease the complexity of that implementation.

Second, QoR may be implemented solely within an individual carrier's network. The fact that Bell Atlantic used QoR within its own network would not require any interconnecting carrier to use QoR as well. If two carriers agree, QoR can also operate between networks. Bell Atlantic believes that some of the misunderstanding of QoR was based upon the perception that some of its supporters advocated that carriers be required to use QoR even when they did not wish to do so. This is not the issue before the Commission now.

Third, using QoR will not degrade the service received by the customer who changes carriers. Nor does QoR fail to meet any of the performance criteria contained in the Order.

LRN and QoR work like this.

Today, exchange codes (NXX's) are assigned to particular carriers, and all the numbers are physically located in their switches. NXX's are currently assigned to incumbent local exchange carriers, new entrants and CMRS providers. Calls are routed within the nationwide switched network based on the first six digits of the telephone number, the area code and the NXX. When a Bell Atlantic customer in Washington places a call to a friend in Arlington, the caller's switch knows where to send the call by looking at the first six digits of the friend's phone number.

If the friend changes her local service to a provider with its own switch, number portability will allow her phone number to be moved to the new provider's switch.[4] In order to route calls to the friend, the Bell Atlantic switch must obtain the "location routing number" for that switch from a special database. Typically, this extra processing and database look-up will add about 0.6 second to the setup time of the call.

Using LRN without QoR, Bell Atlantic would have to do a database look-up on every call to any of the 10,000 telephone numbers in the friend's exchange, even if the friend is the only customer in that exchange who has ported her number. All calls to that exchange, whether to a Bell Atlantic customer or to the customer of another provider, would be subject to the delay imposed by the database look-up.

For some period of time, of course, the vast majority of numbers in the friend's exchange will continue to be located in the Bell Atlantic switch. This includes both telephone numbers of customers who continue to get local service from Bell Atlantic, as well as numbers of customers of providers that resell Bell Atlantic local service. Number portability could be implemented more efficiently if a system could be devised that would cause a database look-up only on calls to numbers that had been ported.

This was the genesis of QoR. Instead of automatically doing a database look-up on every call, the Bell Atlantic switch serving the caller first sends a short SS7 data message to the Bell Atlantic switch to which the exchange is assigned. If that switch still has the number (because Bell Atlantic or a reseller is providing the service), that switch tells the first switch to send the call

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[4] If the other provider is reselling Bell Atlantic local service, or for some other reason does not have a switch of its own, the number remains in the Bell Atlantic switch and is not moved anywhere.

along. If the number is not in that switch, then the first switch performs the database look-up and routes the call as instructed by the database.

Using QoR can be of significant benefit to carriers deploying LRN. Fewer database look-ups require fewer databases and lower capacity signaling networks. Without QoR, carriers might be required to add otherwise unnecessary SS7 switches (signal transfer points or "STP's"). Even more important, without QoR, carriers will have to add processor capacity to many of the switches in their networks. These hardware additions are costly and complicated. In a letter filed with the Commission in May, Bell Atlantic estimated that the ability to use QoR would save it approximately $180 million from a cost of without QoR of roughly $440 million for additions to its own network.[5]

There has been much argued in the record about QoR and "post-dial delay." A few facts:

- There is great variation in the network today in the amount of time it takes to set up a telephone call. Calls between customers served by the same switch are completed almost instantaneously. InterLATA calls, that may go through five or more switches, take longer. Some calls require database look-ups that add to the set-up time; 800 service typically involves two separate look-ups. If a carrier does not have SS7 capabilities, processing delays increase. Tests of actual set-up times for long distance calls carried by different providers over different routes show ranges from a couple of seconds to more than 20 seconds.

- Callers are accustomed to this variation.

- There is no evidence that consumers base their choice of carriers on the call set-up time differences that exist today, even those of a couple of seconds.

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[5] Letter from Edward D. Young, III, to Hon. Reed E. Hundt, dated May 10, 1996, at 2. These estimates were based on the then-best-available traffic and engineering information from Bell Atlantic's suppliers. Since then, later but still not firm data suggest that the total cost without QoR is not as great as we believed, but the percentage savings generated by using QoR is approximately the same.

- LRN without QoR will add to the set-up time of all calls to exchanges with ported numbers.

- QoR can decrease the delay imposed by LRN on some calls, namely, on calls to numbers that have not been ported.

- With QoR, the difference between the set-up time on calls to ported and non-ported numbers is only a fraction of a second. Delays of this magnitude are not perceptible to callers and do not matter. Studies have concluded that callers will not even notice a delay as short as this.[6] For 800 service, the Commission approved a mean access time of 2.5 seconds *for the originating exchange access alone*;[7] interexchange carrier handling (including database look-ups) and terminating access add to the total call set-up time.

A most important fact, and one that seems to have been overlooked, is that QoR imposes *no delay at all* on calls placed by customers with ported numbers. These customers' calls are processed by their new carriers without regard to whether the former carrier uses QoR. A customer with a ported number is indifferent to the technology used by her former carrier to route a call to her — she does not make the call and does not experience any delay. However, if QoR does introduce perceptible delay on anybody's service, that delay is on calls placed by customers of the *former* carrier to the porting customer. Therefore, if QoR can be said to "degrade" anybody's service, it is the service of customers who have stayed with the carrier using QoR, not those who have switched to another carrier.

This means that the incumbent can hardly use "post-dial delay" as a marketing tool. If there is a marketing advantage here at all — and any marketing campaign based on a fraction of a second extra processing time would seem unlikely to produce many customers — it is in the

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[6] MacDonald & Archambault, *Using Customer Expectations in Planning the Intelligent Network*, PROCEEDINGS OF THE 14TH INTERNATIONAL TELETRAFFIC CONGRESS (ITC) 95-104 (1994); Cotton & Kuong-lau, *Effects of Initial and Subsequent AIN Call Setup Delays on Grade of Service Expectations*, Technical Memorandum TM-NWT-016605, July 1990.

[7] *Provision of Access for 800 Service*, 6 FCC Rcd 5421, 5425 (1991).

hands of the new entrant, which can advertise that its calls go through faster than those of the incumbent.

1. The Commission's Order Permits an Exchange Carrier To Use QoR To Route Calls From Its Customers to Numbers in NXX's Assigned to That Carrier.

Bell Atlantic believes that the Order, in particular the performance criteria in paragraph 48, permits Bell Atlantic to use QoR to route calls originated by its customers to telephone numbers in NXX codes assigned to Bell Atlantic. In addition, the Order does not prevent two carriers from agreeing to use QoR between their networks.[8] The Order, however, has been interpreted by others as prohibiting such use. Bell Atlantic requests that the Commission make it clear that this use is permitted.

The Rules adopted by the Order establish nine performance criteria that any form of long-term number portability must meet.[9] Bell Atlantic is unaware of any suggestion that QoR does not satisfy seven of these criteria (numbers 1, 2, 3, 5, 7, 8 or 9).

The fourth criterion is that a number portability method not require that one telecommunications carrier rely on another carrier's network "to route calls to the proper termination point."[10] This is to ensure "that carriers have the ability to route telephone calls and provide services to their customers independently from the networks of other carriers."[11] Using QoR within a Bell Atlantic's own network to route calls to numbers in NXX's assigned to Bell

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[8] What the Order does not permit is one exchange carrier's requiring other carriers to use QoR within their networks to accomplish number portability between the two carriers.

[9] 47 C.F.R. § 52.23.

[10] 47 C.F.R. § 52.23(a)(4).

[11] Order ¶ 53.

Atlantic is perfectly consistent with this standard. Such use would in no way effect the ability of any other carrier "to route telephone calls and provide services to their customers independently from the networks of other carriers."

In paragraph 54 of the Order, however, the Commission states that this criterion precludes the use of QoR. The discussion in this paragraph indicates that the Commission believed that the use of QoR by one carrier necessarily required that other carriers use QoR as well — it refers to "significant network interoperability issues" and says that "because carriers using QoR may be required to send a QoR message to another carrier's switch to determine if a customer has transferred the number, the second carrier must have that ability to recognize and respond to the QoR message, which may also increase its costs." Using QoR imposes no such requirement. While some of QoR's more ardent supporters may have argued for allowing one carrier to force QoR on other carriers, these bad consequences should not prevent carriers from using QoR wholly within their own networks.

Criterion 6 is that a number portability method "not result in any degradation of service quality or network reliability when customers switch carriers."[12] Although the Order does not state that QoR is inconsistent with this criterion, there has been some suggestion that it fails this test because of "post-dial delay." As described above, however, the simple fact is that when a customer switches from Bell Atlantic to another provider, she will experience no degradation of quality or reliability if Bell Atlantic uses QoR for the purpose of routing calls to her.

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[12] Order ¶ 48(6).

2. If the Commission Believes That the Order Does Not Permit an Exchange Carrier To Use QoR To Route Calls From Its Customers to Numbers in NXX's Assigned to That Carrier, It Should Reconsider That Decision.

If the Commission intended paragraph 54 of the Order to apply to the use of QoR within a carrier's network to route calls to numbers in NXX's assigned to that carrier, then the conclusions in that paragraph are factually incorrect and should be reconsidered.

First, paragraph 54 says that QoR "would treat ported and non-ported numbers differently." If this is a test of number portability methods, it apparently is a new criterion in addition to those adopted in Rule 52.23. If it is a new criterion, then all number portability techniques, *including* LRN, fail, as they necessarily treat ported and non-ported numbers differently.[13] If this concept is part of the performance criteria for number portability, it must be read to mean that a technique may not "treat ported and non-ported numbers differently *in a way that matters to the customer porting his or her number or could adversely effect other carriers.*" QoR certainly passes that test.

Second, paragraph 54 says that QoR would "force reliance on the incumbent LEC's network." If Bell Atlantic is going to route a call from one of its remaining customers to a ported

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[13] For example, with LRN, calls to ported numbers may well be handled by one or two more switches than calls to non-ported numbers. Traversing multiple switches can add to the time it takes to complete the call, a delay, however, that is not perceptible to the caller and that has no effect at all on called person who ported her number. In particular, when a man calls a neighbor who is served by the same central office, that call today is completed almost instantaneously. After the deployment of LRN, this call would be completed in precisely the same way if the neighbor continues to use the services of the incumbent. In one Bell Atlantic State, this type of call accounts for almost two-thirds of all local calls, and in two other States that figure is more than forty percent. However, if the neighbor changes carriers and takes her number with her, LRN would add a database inquiry, transmission to the other exchange carrier's switch and handling by that switch. If the other carrier has chosen to interconnect at the tandem instead of at every end office, then the call will also have to be sent to and processed by that additional switch.

number, Bell Atlantic will have to rely on its own network to do it. The self-reliance is no greater with QoR than without it.

Third, that paragraph also says that QoR would increase the potential for call blocking. However, QoR is being designed so that, if any network congestion is experienced during QoR processing, QoR processing will cease and a database look-up will be performed to complete the call. Moreover, QoR actually decreases the volume of this signaling traffic, making blocking less likely.

Fourth, paragraph 54 says that QoR "creates significant network interoperability issues." If Bell Atlantic uses QoR only within its own network, there can be no such issues.

Fifth, the Order says that QoR would "result in inefficient routing." The fact is that QoR does not affect the routing of calls in any way. The routing of a call to a ported number using LRN with QoR is accomplished in exactly the same way as LRN without QoR.

Finally, paragraph 54 states that QoR would "delay deployment of a long-term number portability method." The fact is that all manufacturers other than AT&T's Lucent have said that the QoR functionality can be provided in time to meet the schedule in the Order. It is not clear why Lucent is not sure it can deliver as promptly as other suppliers.[14]

Because any rejection of QoR in the Order was based on plain factual misunderstandings or errors, the Commission should correct the Order to make it clear that a carrier is permitted to use QoR to deliver calls to NXX's assigned to it.

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[14] As described above, the failure to implement QoR will result in switch processor upgrades and additions which will greatly increase the complexity of LRN implementation and which might result in delay.

3. The Commission Should Not Disturb State Rules Concerning Interim Number Portability.

Interim number portability is very different from long-term portability. Interim portability is a service provided by one carrier to another, using only resources in its own network. Long-term portability involves an industry-wide effort and significant shared facilities, such as service management systems and network portability databases. Interim portability is being offered today. The software to provide long-term portability still does not exist. The costs to provide interim portability are largely incurred as needed on a customer-by-customer basis. Long-term portability requires switch upgrades, infrastructure additions, and database and systems creation before a single number can be ported. Interim portability is comparatively cheap. Long-term portability costs billions.[15]

These differences demand different cost recovery mechanisms.

In the Order, the Commission adopted new regulations to govern "Cost Recovery for Transitional Measures for Number Portability."[16] These rules apply the same standards for interim portability arrangements as the Commission has in mind for long-term portability and impose these standards on the States.

The States have been dealing with interim portability arrangements for a long time. In fully litigated proceedings, they have developed plans for paying for these costs. They have heard all the claims of competitive neutrality, and they have crafted plans designed to be fair.

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15 See Order ¶ 122.

16 47 C.F.R. § 52.29.

Contrary to the Commission's conclusion in the Order,[17] however, there is no requirement that the Commission interfere with existing State actions in this way.

The 1996 Act does not require the Commission to intervene in these matters.[18] It is true that section 251(e)(2) requires the Commission to prescribe rules for recovering the costs "of establishing . . . number portability." Interim number portability, however, is already "established," and there are no further "establishment" costs for rules under this section. What must be "established," and for which the Commission must devise a cost recovery plan, is the system of long-term number portability.

Commissions in two Bell Atlantic States have adopted plans that permit Bell Atlantic to recover the costs of interim portability arrangements from the carriers using them.[19] These commissions considered a range of options, from requiring Bell Atlantic to provide interim arrangements at no charge to allowing Bell Atlantic to charge its full end user rates for them. After full evidentiary hearings and on complete factual records, these agencies concluded that Bell Atlantic should be permitted to recover its costs from the other carrier. The Maryland commission, for example, concluded that "the market will be best served by setting rates at the level of costs, namely direct, joint and common costs. . . ."[20]

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17 Order ¶¶ 121, 127.

18 Nor does it have the right to do so. As local number portability is an intrastate service, the Commission has no jurisdiction over it absent some explicit grant of authority. 47 U.S.C. § 152(b).

19 *Application of MFS Intelenet of Pennsylvania*, Dkt. No. A-310203F0002, Opinion and Order at 16 (Pa. PUC July 18, 1996); *Application of MFS Intelenet of Maryland*, Case No. 8584, Phase II at 48-51 (Md. PSC Dec. 28, 1995).

20 *Id.* at 50.

The Commission is simply wrong when it concludes[21] that these plans are not competitively neutral.

First, there is no evidence in the record upon which the Commission could possibly base such a conclusion. Under the Commission's definition of competitive neutrality, it would have to determine that these plans "give one telecommunications carrier an appreciable, incremental cost advantage over another telecommunications carrier."[22] To make this determination, the Commission would have had to calculate the incremental costs of various interim portability methods, as well as the incremental costs of all providers' local exchange service offerings. Only then could the Commission rationally conclude that this cost recovery method would place one provider "at an appreciable, incremental cost disadvantage" to another.

The Commission's other criticism of such cost recovery — that new entrants might be "effectively precluded from entering the local exchange market" if they must pay cost-based prices for interim portability — has even less factual basis. The Commission has done no analysis of the magnitude of these costs, in relation to the other costs any new entrant must incur to get into the local exchange business, or of the revenues and cash flows of new entrants. Without such analysis, the Commission cannot rationally conclude that this incremental cost will prevent new entry. The Commission cannot preempt State regulation of intrastate services based on this sort of economic theory unsupported by any data.

Second, the Commission does not explain how it could possibly be competitively neutral to deny Bell Atlantic the ability to recover even its incremental costs. If Bell Atlantic

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21 Order ¶ 138.

22 47 C.F.R. § 52.29(a)(1)

cannot recover its costs from others, then Bell Atlantic must necessarily be at a cost disadvantage in competing with other providers. If Bell Atlantic cannot recover these costs, then it unclear how it can earn "normal returns" on its investments.[23]

Perhaps the Commission's unstated thinking is that Bell Atlantic is "so big" that a few million here and there won't matter, that the impact of unrecovered costs of that magnitude won't be "appreciable," and that Bell Atlantic's returns will be within some undefined "normal" range in any event. If this is the Commission's theory, it should state it. Even more important, if the Commission is going to purport to overturn State commission decisions — decisions that are based on hard facts, not just abstract theory — it must show that the facts fit its theory.

The 1996 Act gives the Commission no authority over the pricing of interim portability arrangements and does not deprive the States of their jurisdiction over these intrastate services. Even if it did, allowing a carrier to recover its costs can be "competitively neutral," and denying a carrier that ability must fail that test.

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[23] Order ¶ 135.

Conclusion

The Commission should confirm that Bell Atlantic may use QoR within its own network to process calls to telephone numbers in NXX's assigned to Bell Atlantic. It should also reconsider its decision to impose rules on the States governing cost recovery mechanisms for existing number portability arrangements.

Respectfully submitted,

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